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DEPARTMENT OF THE NAVY
OFFICE OF THE CHIEF OF NAVAL OPERATIONS
WASHINGTON, D.C. 20350

IN REPLY REFER TO

OPNAVINST 6260.1A
Op-45
6 Aug 1978

217875

OPNAV INSTRUCTION 6260.1A

From: Chief of Naval Operations

To: All Ships and Stations (less Marine Corps field addressees not having Navy personnel attached)

Subj: Control of asbestos exposure to naval personnel and environs

Ref: (a) Occupational Safety and Health Act of 1970, 29 U.S.C. § 651 et seq. (1970)
(b) U.S. Department of Labor, Occupational Safety and Health Administration, General Industry-Safety and Health Standards, OSHA 2206 (Revised January 1976) as modified in 29 C.F.R. § 1910 et seq. (1977)
(c) Executive Order 11807, "Occupational Safety and Health Program for Federal Employees", 3 C.F.R. § 897(1971-1975 Compilation)
(d) Clean Air Act, as amended, 42 U.S.C. § 7401 et seq. (1970)
(e) 40 C.F.R. Part 61 (1977)
(f) OPNAVINST 5100.8G

Encl: (1) Occupational Health Standards, Controls and Medical Surveillance Requirements
(2) National Emission Standard for Asbestos
(3) Industrial Hygiene Technical Assistance Directory

1. Purpose

a. Occupational Health - To comply with national safety and health standards on asbestos promulgated by reference (a) and implemented by references (b) and (c).

b. Environmental Protection - To comply with the National Emission Standard for Asbestos promulgated by reference (d) and implemented by reference (e).

2. Cancellation. OPNAVINST 6260.1.

3. Background

a. Asbestos is a general term used to describe several fibrous mineral silicates. Although there are many asbestos minerals, only six are of commercial importance. They are:

DEFENDANT'S EXHIBIT
DAW-8016

217876

chrysotile, amosite, crocidolite, tremolite, anthophyllite, and actinolite. Major uses of asbestos are for asbestos cement products, floor tiles, fireproofing, high temperature insulation, asbestos cloth, friction materials (such as brake linings and clutch facings), various gasket materials, and miscellaneous other products.

b. Inhalation of asbestos fibers can produce severe lung damage in the form of disabling or fatal fibrosis of the lungs. Asbestosis means fibrosis of the lungs due to inhaled asbestos fibers. The use of the term "asbestosis" in a generic sense for all asbestos-associated disorders including pleural plaques is imprecise and confusing. Asbestos has also been found to be a casual factor in the development of carcinoma of the lung and malignant mesothelioma, as well as cancer of the gastro-intestinal tract. A long latency period of 20-40 years between first exposure to asbestos and the appearance of a malignancy is frequently noted.

c. Some examples of tasks which can generate concentrations of airborne asbestos which exceed permissible limits are: the fabrication, installation, repair or removal ("rip-out") of asbestos insulation materials, power sawing of asbestos-containing fire retardant building materials, and brake relining and repair work.

d. Although asbestos-free substitute materials are being developed, asbestos materials continue to be used in the Navy in such applications as gaskets and pipe hanger liners. In addition, ships presently in commission and shore installations have asbestos boiler and pipe insulation that will involve "rip-out" and potential personnel exposure for another 20 or more years.

e. Recognizing the serious health implications of asbestos exposure to humans, the government has imposed stringent occupational health and environmental protection standards (references (b) and (e) respectively) for the control of asbestos. These standards and controls, specified in enclosures (1) and (2), must be strictly enforced and followed by all Navy civilian employees, both appropriated and nonappropriated fund, and military personnel afloat and at all shore activities.

217877

4. Action

a. The Chief, Bureau of Medicine and Surgery (BUMED), shall centrally manage the Asbestos Medical Surveillance Program ashore and afloat. The Chief, BUMED shall also provide professional, technical, and health educational assistance to commands for the purpose of evaluating asbestos exposure in accordance with reference (f). Enclosure (3) provides a list of activities where industrial hygiene assistance is available.

b. The Chief of Naval Material shall, in coordination with BUMED, provide advice and technical assistance to define appropriate engineering and work practice controls and develop remedial projects.

c. Major claimants shall insure program support by budgeting the resources required to meet the regulatory standards for the control of asbestos as prescribed by this instruction.

d. Commanding officers for shore activities shall insure that:

(1) Appropriate occupational health/industrial hygiene control measures and monitoring procedures in enclosure (1), or headquarters approved alternatives that provide substantially equivalent protection, are applied to processes and procedures using asbestos or asbestos containing materials.

(2) The National Emission Standard for Asbestos is complied with as prescribed in enclosure (2).

e. Commanding officers of afloat commands shall comply with the provisions of enclosure (1) to the maximum extent feasible. Specific guidance for afloat commands will be provided.

5. Report and Form

a. The information requested by this directive does not constitute a formal reporting requirement and is exempt from reports control.

FW 00021276

217878

b. Local reproduction has been authorized for OPNAV 5260/1 (7-78) by the Navy Publications and Printing Service Management Office.

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Deputy Chief of Naval Operations (Logistics)

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217879

OCCUPATIONAL HEALTH STANDARDS, CONTROL AND MEDICAL SURVEILLANCE REQUIREMENTS

1. Permissible Exposure Concentration

a. "Time Weighted Average (TWA)" - The 8-hour airborne concentration of asbestos fibers to which civilian employees and military personnel may be exposed shall not exceed two (2) fibers, longer than 5 micrometers, per cubic centimeter of air, as determined by the method prescribed in paragraphs 5 and 6.

b. "Ceiling Limit" - Civilian employees and military personnel shall not be exposed at any time to airborne concentrations of asbestos in excess of 10 fibers, longer than 5 micrometers, per cubic centimeter of air.

2. Medical Surveillance Action Level. "Medical Surveillance Action Level" for asbestos shall be defined to include any individual who because of employment is required to enter or work on a regular basis in areas containing an airborne concentration of asbestos at or above 0.5 fibers/cubic centimeter greater than 5 micrometers in length as determined by phase contrast microscopy. "On a regular basis" is defined as 15 separate days in any quarter during a calendar year or 45 days per year. Additionally, those personnel exposed at any time, for any length of time, to airborne concentrations in excess of the "ceiling limit" shall be included under the "Medical Surveillance Action Level". The aforementioned term "Medical Surveillance Action Level" is defined and used only for the purpose spelled out specifically in this instruction and to identify those individuals who will be included in the Asbestos Medical Surveillance Program.

3. Engineering and Work Practice Control Measures

a. Local exhaust ventilation is frequently required to ensure that atmospheric levels of asbestos do not exceed maximum permissible limits. General requirements for the design and use of ventilation to reduce exposures can be found in attachment (1). Specific guidance in adapting attachment (1) to each asbestos operation may be obtained from activities listed in enclosure (3).

FW 00021278

b. As practicable, asbestos shall be handled, applied, removed, cut, sawed, or otherwise worked in a wet state sufficient to prevent the emission of airborne fibers in excess of the permissible exposure concentrations.

c. Asbestos-free substitute materials shall be tested, under the technical management of cognizant headquarters activity, and, if acceptable shall be used in place of asbestos containing materials.

d. All external surfaces in the work area where asbestos is handled shall be maintained free of visible accumulations of loose asbestos fibers which could result in airborne concentrations in excess of the limits set forth in paragraph 1.

e. Disposal of asbestos, asbestos-containing materials, and asbestos-contaminated waste shall be in accordance with the procedures listed in attachment (2).

f. To minimize exposure potential, shipboard or shore facility asbestos removal operations shall, to the maximum extent feasible, be performed during the second or third shifts or on weekends/holidays.

4. Personnel Protective Equipment

a. Compliance with permissible exposure limits shall not be achieved by the use of respirators except as indicated in attachment (3). Assistance in the specific application of attachment (3) may be obtained from activities listed in enclosure (3).

b. Special clothing such as coveralls or disposable whole body clothing and head, glove and foot coverings shall be supplied to and worn by personnel exposed to airborne asbestos fibers. See attachment (4) for details.

c. Change rooms shall be provided, as close as practical to the asbestos work area, when exposure to the airborne concentration of asbestos fibers is in excess of the permissible exposure limits as given in paragraph 1. Details are provided in attachment (4).

FW 00021279

217881

3. Method of Measurement. All determinations of airborne concentrations of asbestos fibers shall be made by the membrane filter method at 400-450 magnification, using phase contrast illumination, with sample mounted in high viscosity solution of membrane filter material. It is to be noted that if the material which is suspected of being the source of the airborne fibers is known to contain asbestos, then all airborne fibers (fibers having an aspect ratio of 3:1 and longer than 5 micrometers) are to be counted as asbestos fibers.

4. Environmental Monitoring

a. An environmental monitoring plan shall be established to characterize airborne asbestos levels of all operations. Within a class/category of similar operations sampling shall be of such frequency and pattern to accurately and reproducibly represent the airborne levels produced by a typical operation within the class/category. Sampling of all areas where repetitious asbestos work is performed shall be at intervals of six (6) months or less, to verify that the work site/operation has remained in the same class/category. Each non-repetitious asbestos removal operation will be sampled at least once to determine the maximum potential exposure. Each asbestos removal operation aboard ship will require at least one air sample to be taken upon completion of the operation to verify that clean up operations were effected and the area is safe for personnel to enter without protective equipment. Environmental monitoring records which represent the maximum potential exposure of workers involved with asbestos removal operations shall be retained for a period of 50 years.

b. Samples shall be collected from within the breathing zone of personnel, on membrane filters of 0.8 micrometer porosity mounted in an open-face filter holder. Samples shall be taken for the determination of the 8-hour time-weighted average airborne concentration and ceiling limit concentration of asbestos fibers. Filters should be prepared to determine the average background count. Persons counting filters shall be judged proficient by successful participation in the NIOSH Proficiency Analytical Testing (PAT) program. Only "phase contrast" microscopes especially "set up" for asbestos counting should be utilized. Persons performing dispersion staining to differentiate asbestos and

FW 00021280

217382

non-asbestos fibers shall be specifically trained in this technique. Their proficiency shall be verified with standard laboratory quality control techniques approved by the Navy Environmental Health Center (NAVENVIRHLTHCEN). All environmental monitoring records/data etc., shall be retained on personnel exposed to asbestos for a period of 50 years following termination of service/employment.

c. Measurement and monitoring shall be conducted under the technical direction of an industrial hygienist. Sources of industrial hygiene assistance are provided in enclosure (3).

7. Caution Sign and Labels

a. Caution signs shall be provided and displayed at each location where airborne concentrations of asbestos fibers may exceed the permissible exposure concentration. Signs shall be posted at such a distance from such a location so that personnel may read the signs and take necessary steps before entering the area marked by the signs. Signs may be sized to suit the particular occasion. A listing of required protective equipment may be attached to or part of the sign. The following criteria represents the minimum requirements: caution signs shall conform to the general requirements of 20 inch by 14 inch vertical format signs, as specified in 29 CFR 1910.145(d)(4). The signs shall display the following legend in the lower panel, with letter sizes and styles of a visibility at least equal to that specified in this subdivision:

LEGEND	NOTATION
Asbestos	1" Sans Serif, Gothic or Block.
Dust Hazard	3/4" Sans Serif, Gothic or Block.
Avoid Breathing Dust	1/4" Gothic.
Wear Assigned Protective Equipment	1/4" Gothic.
Do Not Remain in Area Unless Your Work Requires It.	1/4" Gothic.
Breathing Asbestos Dust may be Hazardous to Your Health.	14 point Gothic.

FW 00021281

217883

spacing between lines shall be at least equal to the he[illegible] of the upper of any two lines.

b. Caution labels shall be affixed to containers of raw materials, mixtures, scrap, waste, debris, and other products containing asbestos fibers if, in the foreseeable use, handling, storage, disposal, processing or transportation of those items, levels of airborne asbestos could be produced which might constitute a threat to worker health. The caution labels shall be printed in letters of sufficient size and contrast as to be readily visible and legible. The label shall state:

CAUTION

Contains Asbestos Fibers

Avoid Creating Dust

Breathing Asbestos Dust May Cause
Serious Bodily Harm

8. Medical Surveillance

a. Preplacement evaluation - All naval personnel, both military and civilian, upon assignment to a position involving exposure to asbestos, as defined in the "Medical Surveillance Action Level" section, shall have a health evaluation. This evaluation shall be performed within 30 days and should include the following:

(1) A comprehensive occupational history, attachment (5), detailing prior exposure to potentially harmful chemical or physical respiratory hazards, particularly asbestos. Any adverse effects related to these exposures must also be recorded. A respiratory history, attachment (5), with emphasis on the presence of respiratory symptoms and smoking must also be recorded.

(2) A physical examination with special emphasis on the chest, particularly the presence of persistent "dry rales" or "crackles" at the lung base.

FW 00021282

(3) A 14" by 17" posterior-anterior chest roentgenogram. These films shall be locally screened and interpreted in accordance with current radiological practices. In addition, these films shall also be interpreted in accordance with the ILO-U/C International Classification of Radiographs of Pneumoconiosis - 1971. If local ILO-U/C 1971 interpretation of radiographs is not available, assistance may be obtained from the Navy Environmental Health Center (NAVENVIRHLTHCEN), 3333 Vine Street, Cincinnati Ohio 45220 (Attention CODE 3), AUTOVON: 684-3863 or Commercial: (513)684-3863.

(4) Pulmonary function tests including forced expiratory volume in one second (FEV_1) and forced vital capacity (FVC). Such tests should be performed, calculated, and interpreted in accordance with the Navy Environmental Health Center Technical Manual 77-1, May 1977.

(5) Sputum cytology is recommended for personnel who meet one or more of the following criteria:

(a) 45 years of age or older

(b) 10 or more years of asbestos exposure

(c) regularly smoke one or more cigarettes per day

(6) A judgment of the workers ability to use respiratory protective equipment.

(7) The findings of severe respiratory impairment from any cause, e.g., FEV_1/FVC less than 45% or FVC less than 70% of predicted, or the presence of documented actual or probable pulmonary asbestosis, should be considered disqualifying for initial assignment. Any other abnormalities discovered in the course of the pre-employment evaluation should be investigated to determine if they could substantially increase the risk of asbestos-induced disease.

b. Periodic and Termination-of-Employment evaluations - A medical evaluation identical to Section 8.a.(3)-(7), pre-employment examination, shall be conducted annually and within 30 days before or after their termination of employment for all personnel occupationally exposed to asbestos.

FW 00021283

212885

fibers. Personnel shall be notified of any abnormal detected by screening tests (preplacement, periodic, or termination of employment) and the medical record specifically so noted and initialed by physician and patient."

NOTE: If records indicate employee has received an annual physical examination within the past 12 months a termination examination is not required.

c. When an individual is no longer exposed, as defined under the "Medical Surveillance Action Level" section, he or she will continue to be medically monitored if any of the following criteria are met:

(1) regularly smokes one or more cigarettes per day,

(2) 5 years accumulated exposure to asbestos, and

(3) has any asbestos-associated disorder.

d. An individual, not currently exposed, as defined under the "Medical Surveillance Action Level" section, who believes he was exposed in the past, shall complete the Medical Surveillance Questionnaire, attachment 5. Based on the review of attachment 5 the individual may be requested to take a full asbestos physical. If the results warrant the individual will be placed in the Asbestos Medical Surveillance Program. If the results are negative the individual will be recalled in five (5) years for re-examination.

9. Diagnosis of Asbestosis and Related Disorders

a. The diagnosis of "asbestosis" is presumptive with known past exposure to asbestos (the presence of pleural changes or asbestos bodies in the sputum may support or suggest past exposure) and two or more of the following criteria:

(1) Dyspnea (shortness of breath) on exertion,

(2) Persistent basal inspiratory "crackles" or "dry rales",

(3) Diffuse interstitial changes on the chest roentgenogram,

FW 00021284

(4) Reduction in vital capacity and diffusion capacity, and

(5) Digital clubbing.

b. In early stages of the disease, dyspnea and roentgenographic changes may not be present and the only abnormalities may consist of a slight reduction in the vital capacity, arterial desaturation with exercise, and end-inspiratory rales. A history of exposure to asbestos is critical to the diagnosis. It is unusual for pulmonary asbestosis to develop with less than 10 years of exposure. Individual's with medical findings suggestive of asbestosis, but not supported by an adequate history of exposure, should have further evaluation by a pulmonary disease specialist to rule out other diagnoses.

c. Workers who have been exposed to asbestos in the past and show abnormal lung changes, e.g., pleual plagues and/or pleual thickening, shall be diagnosed as having an asbestos-related disorder and shall be placed in the medical surveillance program.

10. Medical Records

a. All personnel who are included under the "Medical Surveillance Action Level" shall have the exterior of their Health Records prominently marked "ASBESTOS".

b. Each individual record must include the following identifying information:

(1) Name,

(2) Social Security No,

(3) Date of birth,

(4) Dates of examinations, and

(5) Job titles, job codes, and/or primary and secondary Navy Enlisted Classification Code (NEC).

c. All records of examinations, possible asbestos-related conditions, related x-ray interpretations and all forms and correspondence related to the employee's medical

FW 00021285

history shall become a permanent part of the Health Record and be retained for a period of 50 years following termination of service/employment. X-ray films shall be retained for a period of five (5) years.

d. The judgement of the occupational health physician concerning the adequacy of the diagnostic information to support the impression of asbestos-related disease shall be entered in the medical record. Lacking definitive criteria the evaluating physician must exercise his best medical judgement on each individual case.

e. Copies of a summary of any examinations, x-ray reports, or special studies in an individuals Health Record or compensation folder shall be made available to a physician of the individual's choice after execution of a proper release of information.

f. Medical records as defined in paragraph 10(b) and (c) above shall be maintained locally pending the establishment of an Asbestos Occupational Exposure Data Bank by BUMED.

11. Education.

a. All personnel currently exposed to asbestos, as defined by the 'Medical Surveillance Action Level' section and their supervisors shall receive a detailed indoctrination and periodic refresher instruction at least semi-annually.

b. The initial indoctrination shall include all of the following:

(1) Hazards of asbestos,

(2) Safe handling and disposal procedures,

(3) Proper use of protective equipment,

(4) Association of cigarette smoking and asbestos-related disease, and

(5) Procedures for reporting actual or suspected exposure to uncontrolled asbestos.

FW 00021286

217888

c. All personnel, including supervisors, not covered under the "Medical Surveillance Action Level" who could incidentally come in contact with asbestos or asbestos-containing materials, shall be informed of the potential risk and proper handling procedures.

12. Outside Contractor

Each contract for work to be performed by an independent contractor, within the United States, which may involve the release of asbestos fibers, shall incorporate the appropriate references and/or specific contract clause or clauses necessary to assure that:

a. the contractor is aware of the potential hazard to his employees and others,

b. the contractor shall take such special precautions (e.g., 29 C.F.R. 1910.1001) as are necessary and appropriate to protect his employees, as well as others, from any physical harm, and

c. the work shall be accomplished without violating the permissible exposure concentration, as discussed in paragraph 1 of this enclosure, and/or the National Emission Standard, as discussed in enclosure (2).

The Chief of Naval Material shall issue appropriate guidance to all activities which contract for services involving a possible asbestos-exposure hazard, including a standard contract clause or clauses and instructions for their use. Appropriate monitoring and enforcement of the contract provisions is required.

FW 00021287

Engineering and Work Practice Control Measures

1. Local exhaust ventilation control measures and dust collection systems shall be designed, constructed, installed and maintained in accordance with the American Conference of Governmental Industrial Hygienists (ACGIH) Ventilation Manual or the American National Standard, Fundamentals Governing the Design and Operation of Local Exhaust Systems; ANSI Z9.2-1971, available from the American National Standards Institute, 1430 Broadway, New York, New York 10018.

2. All hand-operated and power-operated tools which may produce or release asbestos fibers in excess of the permissible exposure concentrations shall be provided with a local exhaust ventilation system.

3. It must be noted that ventilation systems used to control asbestos exposures or emissions cannot be directly exhausted to the workroom or atmosphere. The use of High Efficiency Particulate Air (HEPA) filters with prefilters, or other collection systems approved by the cognizant industrial hygienist, is required to prevent the inadvertent production of an exposure hazard (see enclosure (2)).

4. Exhaust filtration systems must be meticulously maintained to prevent performance degradation of the ventilation system as a whole. Such maintenance work must be done in accordance with the provisions of the basic instruction.

5. To the extent feasible, local exhaust ventilation connected to HEPA or other approved filters should be provided at the point of airborne fiber generation. Capture velocities must be high enough to entrain generated fibers under the specific environmental conditions. Duct transport velocities must be high enough to prevent accumulation of fibers in the duct and clean-out ports should be provided where necessary. Specific equipment design parameters (e.g., requirements for static pressure monitors), as well as protective clothing/respiratory protection and system servicing procedures for each operation must be provided/approved by the cognizant industrial hygienist.

FW 00021288

6. Procedures shall be established that minimize the accumulation of waste dust or scrap materials. Specific procedures for containment of dust and handling of contained materials shall be instituted so that the possibility of secondary air contamination is minimized. Cleanup procedures based on wetting the material and use of vacuum cleaning for removal of debris shall be employed whenever possible.

7. Personnel engaged in the removal ("rip-out"), or demolition of pipes, structures, or equipment covered or insulated with asbestos, and in the removal or demolition of asbestos insulation or coverings shall be provided with a type "C" continuous flow or pressure demand, supplied air respirator and protective clothing in accordance with attachments (3) and (4). Care shall be taken to minimize the effects of meteorologic conditions, such as wind, to control the spread/increase of airborne concentrations of asbestos. Enclosures or temporary curtains shall be used to control the amount and velocity of air moving through the workplace, whenever possible.

8. Asbestos waste, scrap, debris, bags, containers, equipment, and asbestos-contaminated clothing, consigned for disposal, which may produce in any reasonably foreseeable use, handling, storage, processing, disposal, or transportation, airborne concentrations of asbestos fibers in excess of the permissible exposure concentration shall be collected and disposed of in sealed impermeable bags, or other closed, impermeable containers and labeled in accordance with paragraph 7.b. of enclosure (1). Transportation of asbestos waste including piping or other debris resulting from demolition shall be conducted in a manner that does not release airborne asbestos fibers.

FW 00021289

Disposal Procedures

1. Asbestos materials, properly contained and disposed of in an approved sanitary landfill that is operated in accordance with 40 CFR 241 guidelines, should not pose a hazard to human health or the environment.* The landfill operator must maintain daily compacted soil cover. Specific locations within landfills used for the disposal of asbestos materials should be recorded by the landfill operators with a copy of the report retained by the cognizant naval facility for future reference. This practice should reduce the possibility of future unearthing and rupturing of disposal containers.

2. In preparation for disposal, asbestos wastes must be adequately wetted, when appropriate, prior to bagging in heavy-duty plastic bags or other suitable impermeable containers. All bags or containers must be provided with standard asbestos "caution labels". Asbestos waste containers such as bags, trash cans, dumpsters, etc., shall be distinctively color coded to assure easy recognition. Dumpsters shall be labeled "ASBESTOS WASTE ONLY" or otherwise marked in accordance with paragraph 7.b. of enclosure (1). Care must be exercised in order to prevent bags and other containers from rupturing when being moved to a dumpster or other suitable vehicle for transport to a proper disposal site.

3. For guidance concerning specific health-related precautions to be used for specific operations, consult the cognizant industrial hygienist (see enclosure (3)). For guidance concerning specific environmental questions, or applicable local regulations, consult the Hazardous Waste Disposal Guide, NESO 20.2-011 of December 1976, Part IV: Directory of Contacts for Disposal Assistance.

*NOTE: Some states may require large quantities of asbestos materials to be disposed of in specially designated landfills. Therefore, consult appropriate state regulations prior to disposal.

FW 00021290

Respiratory Protection

1. Engineering control measures shall be employed to control and contain airborne asbestos fibers to the lowest feasible level. Compliance with permissible exposure limits shall not be achieved by the use of respirators except under the following conditions:

a. during the time period necessary to commence engineering control measures,

b. in work situations in which the control methods prescribed are not technically feasible, or feasible to an extent insufficient to reduce the airborne concentration of asbestos fibers below the maximum permissible limit, and

c. during emergencies.

2. A respirator program shall be established as described in the requirements of the American National Standards, Practices for Respiratory Protection, ANSI Z88.2-1969 (available from the American National Standards Institute, 1430 Broadway, New York, New York 10018), as embodied in 29 CFR 1910.134.

3. Where a respirator is required, it shall be selected from those approved for protection against exposure to asbestos by the Mining Enforcement and Safety Administration (MESA), or Mine Safety and Health Administration (MSHA), or the National Institute for Occupational Safety and Health (NIOSH).

4. Reusable or disposable single-use air purifying respirators should be NIOSH/MESA/MSHA approved for protection against pneumoconiosis and fibrosis producing dusts, including asbestos. They shall be used to reduce the concentrations of airborne asbestos fibers in the respirator below the permissible exposure concentrations, when the ceiling or the 8-hour time-weighted average concentration of asbestos fibers is reasonably expected to exceed no more than 10 times the limit, based on data obtained in accordance with paragraph 3 of enclosure (1).

Attachment (3)
to Enclosure (1)

5. A full facepiece powered air purifying respirator, or a powered air purifying respirator shall be used to reduce the concentration of airborne asbestos fibers in the respirator below the permissible exposure concentration when the ceiling or the 8-hour time-weighted average concentration of asbestos fibers is reasonably expected to exceed 10 times, but not 100 times, the limit, based on data obtained in accordance with paragraph 5 of enclosure (1).

6. A type "C" continuous flow or pressure-demand, supplied-air respirator shall be used to reduce the concentration of airborne asbestos fibers in the respirator below the permissible exposure limit when the ceiling or 8-hour time-weighted average airborne concentration of asbestos fibers is reasonably expected to exceed 100 times those limits, based on data obtained in accordance with paragraph 5 of enclosure (1).

7. Breathing air and/or sources of breathing air for self-contained breathing apparatus and supplied-air respirators must conform to the requirements found in the following documents: 29 CRF 1910.134(d); Federal Specification GG-A-1034a of 21 June 1968, with Amendment 1 of 15 December 1970; and NAVFACINST 11300.24B of 2 August 1972.

8. A person shall not be assigned to tasks requiring the use of respirators if, based upon his most recent medical examination, an examining physician determines that the person will be unable to function normally wearing a respirator, or that the safety or health of the person or other personnel will be impaired by his use of a respirator.

FW 00021292

Personal Protective Clothing/Change Room/ Shower Facility Requirements

1. Personnel engaged in (1) handling of asbestos-containing materials during "ripout" operations, or (2) in situations where emission of airborne fibers in excess of the permissible exposure limits is likely, shall wear the protective clothing listed below (See Note 1).

a. Full-body, one-piece disposable coveralls, (preferably constructed of Tyvek material, or material comparable in weight, strength, and resistance to penetration by asbestos) over cloth coveralls supplied and laundered by the Navy (See Note 2).

b. Hoods (head covering), shall extend beyond the collar of the coverall, completely protecting the neck area (See Note 2). The hood should be Tyvek material, or a comparable substitute. Use of a Tyvek coverall with attached hood is highly desirable.

c. Medium weight rubber gloves, or thin latex/rubber gloves with cotton "over glove" (See Note 2).

d. Slip-resistant plastic shoe covers, or heavy polyethylene shoe covers with slip-resistant soles, or lightweight rubber boots (See Note 2).

e. Safety glasses with side shields or a full-length face shield when full-face respirators are not in use (See Note 2).

2. Change rooms shall be provided as close as practical to the asbestos work areas (See Note 3).

3. Shower facilities shall be located between the "clean" and "dirty" change rooms and each room shall have separate clothing lockers or containers to prevent contamination.

4. Laundering of asbestos contaminated clothing shall be done so as to prevent release of airborne asbestos fibers in excess of the permissible exposure concentration. Contracts governing the laundering of asbestos-contaminated clothing shall specifically require that contractors comply with the

FW 00021293

precautions specified in 29 C.F.R. 1910.1001 (d)(4)(iii). Bags of asbestos-contaminated clothing should be transported in sealed impermeable bags or containers to which is affixed the standard "caution label".

NOTE 1: The local industrial hygienist (See enclosure (3)) shall be consulted regarding the adequacy of and requirements for protective clothing.

NOTE 2: The proper use of protective clothing requires that all openings be closed and that garments fit snugly about the neck, wrists, and ankles. Accordingly, the wrist and ankle junctions, as well as the collar opening on the outer disposable coveralls, etc., shall be taped, as necessary, to prevent contamination of skin and underclothing without restricting physical movement.

NOTE 3: Protective clothing removal procedures shall be promulgated to include vacuuming of clothing (before removal) using a vacuum approved by the local industrial hygienist (and while still wearing respirators if required for the task).

FW 00021294