DEPARTMENT OF THE NAVY
NAVAL SEA SYSTEMS COMMAND
WASHINGTON, D.C. 20362

IN REPLY REFER TO

NAVSEAINST 5100.2A
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NAVSEA INSTRUCTION 5100.2A

From: Commander, Naval Sea Systems Command
To: All Offices Reporting Directly to COMNAVSEA
Distribution List

Subj: Asbestos Elimination/Substitution/Personnel Protection Program

Ref: (a) SECNAVINST 5100.10D of 11 October 1978, Subj: Department of the Navy Occupational Safety and Health Policy; implementation of
(b) OPNAVINST 5100.23 of 8 May 1979, Subj: Navy Occupational Safety and Health (NAVOSH) Program
(c) OPNAVINST 6260.1A of 8 August 1978, Subj: Control of Asbestos Exposure to Naval Personnel and Environs
(d) Naval Ships' Technical Manual (NSTM), Chapter 635, Change 6 of 15 March 1979, Subj: Thermal Insulation

1. Purpose

a. To establish revised policy on the elimination of asbestos in ship construction, overhaul, repair and maintenance.

b. To direct actions which will further reduce personnel asbestos exposure.

2. Cancellation. NAVSEAINST 5100.2 of 24 October 1975 is hereby cancelled.

3. Applicability. This instruction applies to all naval ships and craft and NAVSEA industrial facilities.

4. Background. Reference (a) directs establishment and maintenance of comprehensive, aggressive, and effective occupational safety and health programs within the Department of the Navy consistent with standards promulgated by the Secretary of Labor in accordance with the Occupational Safety and Health Act of 1970 and designed to protect civilian and military personnel from accidental injury and occupational illness. Reference (b) establishes the requirements of the Navy Occupational Safety and Health (NAVOSH) program required by reference (a). References (c) and (d) delineate measures for control of asbestos exposure to naval personnel and environs.

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5. Discussion

a. Asbestos is a term applied to a group of fibrous minerals such as amosite, chrysotile, crocidolite, etc., composed of silicates of aluminum, magnesium, and other metals. It has been estimated there are more than 3000 different product applications containing asbestos. Because of its fire and heat resistance characteristics, asbestos has been extensively used in industry and in the Navy as insulation lagging applied to propulsion plant components, steam and hot water piping. In addition to thermal insulation, a few typical Navy applications of asbestos containing material include packing and gaskets, talc/talcum, insulating blankets, floor tile, and gloves for hot work.

b. Asbestos is recognized as a major health hazard. Exposure occurs by inhalation of asbestos fibers produced as a fine dust when asbestos is handled during transportation, fabrication, installation, or removal (rip-out) operations. Inhalation of small amounts of asbestos fibers can lead to health impairment particularly in conjunction with smoking.

c. A product containing asbestos does not necessarily pose a risk of exceeding the Navy permissible personnel exposure level to asbestos fibers. However, in some product applications, such as thermal insulation, asbestos fibers are loosely bound, and a substantial number may be dislodged and become airborne during fabrication, installation, use or removal. In other applications such as valve packing, the asbestos fibers are firmly bound or "fixed", and are not likely to become airborne in quantities in excess of the Navy Medical Surveillance Action Level, defined in reference (c), under normal use or removal. Removal of asbestos thermal insulation is a critical and potentially serious operation unless properly controlled by the use of special work procedures.

d. MIL-STD-769F and other applicable standards and specifications require asbestos-free thermal insulation for all machinery, boiler, and piping applications. Asbestos-free materials have been identified for each of these applications. Ships Parts Control Center has established national stock numbers (NSNs) for asbestos-free thermal insulation materials required by MIL-STD-769F and stocks are available. Asbestos-free thermal insulation materials not available through the Navy Supply System may be procured locally.

e. NAVSEA has designated many other technically acceptable asbestos-free substitutes for such things as industrial talc, welder's curtains and blankets, millboard and gloves/mittens for hot work. Additional information regarding asbestos-free substitute materials is available from SEA 05D23, A/V-222-0146.

f. Reference (d) provides the status of asbestos-free thermal insulation in ships recently commissioned or under construction. Under routine conditions of ship operation and maintenance it can be expected that 50 to 70 percent of the thermal insulation in older ships has the potential of being significantly disturbed so as to create a potential airborne fiber hazard sometime during the normal operating life of a ship. Test data indicate that properly installed and maintained thermal asbestos insulation materials do not present a health hazard. However, when thermal asbestos insulation is removed, the potential for exposure exists and the precautions and provisions of references (c) and (d) must be observed to prevent personnel from being exposed to high concentrations of asbestos fibers.

6. Policy

a. Asbestos Use Policy. Asbestos and materials containing asbestos shall not be used in the construction, overhaul, repair, and maintenance of naval vessels where a suitable alternative material has been designated. However, in locations where asbestos containing materials are presently installed, rip-out operations shall not be performed for the sole purpose of eliminating asbestos except for the selected area replacement of thermal insulation as prescribed below.

b. Selected Area Asbestos Replacement Policy. To further reduce the potential health hazard exposure from installed shipboard asbestos thermal insulation material, a selected area asbestos replacement policy is established. The five-year goal of this program is to replace asbestos with asbestos-free materials in all shipboard thermal insulation applications except for that overall 30 to 50 percent of insulation which is normally untouched except for occasional painting or minor repairs. Specifically, existing asbestos-containing thermal insulation which can be expected to require replacement during the remaining life of each ship for normal maintenance and repairs including components removed for interference, shall be replaced with asbestos-free thermal insulation. However, in some situations where in the application of this policy there may be some instances which result in replacement of 90 percent or more of the asbestos containing insulation within a ship's space, the remaining 10 percent should also be considered for replacement to achieve a thermal insulation asbestos-free space.

c. Except in instances where specifically approved by NAVSEA, selected area replacement of asbestos insulation shall not be performed on naval nuclear reactor plant systems or equipment requiring personnel exposure to ionizing radiation for insulation replacement for the following reasons:

(1) Navy policy requires both exposure to ionizing radiation and asbestos dust be minimized. Both policy objectives can be met by limiting insulation replacement on reactor plant systems to those occasions required by necessary repair or maintenance.

(2) Work on radioactively contaminated reactor plant systems requires imposition of radiological controls to prevent the spread of radioactive contamination. These controls also serve to contain asbestos dust.

(3) Most reactor plant systems are located in limited access compartments which reduces the potential for personnel exposure to asbestos dust during ship operation or maintenance periods.

(4) Most reactor plant systems are designed for maintenance free operation throughout ship life. Therefore little insulation replacement on reactor plant systems is expected to be required during ship life.

d. In some instances, selected area replacement of asbestos insulation on reactor plant systems may be warranted to achieve advantages such as an asbestos-free space. To obtain NAVSEA approval for such action, requesters shall demonstrate that the radiation exposure required to perform replacement is small or will result in equal or larger reductions in radiation exposure for future work, or is acceptable because of large savings in cost and time for future maintenance in the affected space or system.

7. Implementation. To enhance the effective visibility/accountability of the asbestos thermal insulation selected area replacement program, Title "D" ship alterations should be utilized for each ship/class. This will provide the basis for budgeting, scheduling, and execution of the program, and for determination of program completion status that is compatible with the existing Ship Alteration Management Information System (SAMIS). Furthermore, this will standardize the approach to asbestos selected area replacement and eliminate the potential for an otherwise fragmented, randomly-executed replacement effort. At least one SHIPALT should be established for each propulsion engineering space, with additional SHIPALTs assigned for asbestos replacement outside the propulsion engineering spaces. In smaller type ships, it is envisioned that two additional SHIPALTs outside the propulsion engineering spaces may be sufficient. For example, one SHIPALT may include all non-propulsion engineering spaces/areas forward of amidships, with the other including all such spaces/areas aft of amidships. In large ships, additional SHIPALTs will undoubtedly be required, possibly using deck subdivision categories.

The Title "D" SHIPALTs should specify the following work requirements:

a. Basic Alteration Class Drawings (BACDs) for SHIPALTs will be developed based on a shipcheck of one ship of each class. Compartments and areas will be surveyed for the likelihood of containing asbestos thermal insulation. Machinery components and length and size of all piping runs will be documented and noted on drawings/sketches developed for the asbestos thermal insulation selected area replacement ShipAlts.

b. At the time of BACD development, an on-scene judgement will be made as to the likelihood of the thermal insulation being disturbed during the life cycle of the ship based on the CNO policy goal for the program as stated in paragraph 6b. This likelihood will be noted as a "yes/no" decision. If the decision is "yes", the piping section/machinery involved should be programmed for replacement of insulation (if the insulation is asbestos); if the decision is "no", the insulation should not be programmed for removal.

c. Based on the results of the shipcheck, the following information should be coded in the BACDs and any accompanying sketches:

(1) Asbestos thermal insulation which should be removed.
(2) Asbestos thermal insulation which is to remain untouched.
(3) Unknown material which is inaccessible for shipcheck verification.
(4) Non-asbestos thermal insulation areas.

d. The precentage of the shipwide total of asbestos thermal insulation removed by each SHIPALT should be indicated on the individual BACDs. The total amount of asbestos thermal insulation removed as a result of all asbestos-removal SHIPALTs applicable to a given ship should not exceed 70% of the total amount of asbestos thermal insulation installed in that ship.

e. The title block of all drawings generated as a result of these SHIPALTs will contain words similar to "ASBESTOS THERMAL INSULATION SELECTED AREA REPLACEMENT PROGRAM SHIPALT (SYSTEM) (EQUIPMENT) (PIPING)".

f. If the percentage of asbestos-free thermal insulation will total 90% or more in any one compartment, then the entire compartment should be considered for replacement with asbestos-free thermal insulation at the time of BACD development.

g. Accomplishment of the asbestos thermal insulation ShipAlts is envisioned to be completed primarily during depot level availabilities such as overhaul periods and Selected Restricted Availabilities. A dedicated period at the beginning of an appropriate depot level availability could be scheduled for the asbestos removal portion of these SHIPALTs.

h. It is anticipated that some portion of the asbestos replacement SHIPALT work must be accomplished during intermediate availabilities in order to ensure program completion within five years.

8. Action. Addressees shall take the following actions to implement this instruction:

a. Deputy Commander for Ship Systems (SEA 05) shall:

(1) Maintain a continuing program to identify satisfactory substitutes for asbestos containing materials. The program priorities

are to be in proportion to the probability of asbestos dust generation during the life cycle use of the materials.

(2) Initiate action to update specifications and manuals, and recommend modificatons to construction, repair and conversion contracts where substitute materials have been identified. In addition, initiate action to obtain new stock numbers, update shipboard allowance lists as applicable and provide disposition instructions for unauthorized materials.

(3) Initiate action requiring specifications and contracts to contain requirements for labeling and packaging asbestos containing products in accordance with reference (c).

(4) Initiate action to have specifications and construction/repair/conversion contracts changed to require specific engineering controls if acceptable asbestos-free substitute material cannot be identified for material whose use is expected to generate asbestos dust above the Medical Surveillance Action Level established by reference (c).

(5) Obtain the concurrence of the Deputy Commander for Nuclear Propulsion (SEA 08) for actions related to nuclear-powered ships.

b. Deputy Commander for Industrial and Facility Management (SEA 07) shall inform SEA 04 on the normal range of asbestos fiber levels during specific repair operations upon request.

c. Deputy Commanders for Submarines (SEA 92), Surface Combatant Ships (SEA 93), and Aircraft Carrier, Amphibious and Auxiliary Ships (SEA 94) shall:

(1) Establish and implement the selected area shipboard asbestos replacement program for ships under their cognizance as required by paragraph 7. The program shall, to the maximum extent possible, be standardized on a ship/class basis. The program shall be defined for all ship classes within one year from the date of this instruction. The program definition shall consist of the following action milestones:

(a) Documentation, capable of being used to prepare job orders or specifications, identifying the thermal asbestos insulation to be removed on a ship/class basis - 1 April 1980.

(b) Identification of additional fund requirements above the historical normal level for replacement of thermal insulation incident to accomplishment of authorized ship and class overhaul repair/alteration work. Fund requirements to accomplish the five year project for respective program ships are to be identified on a fiscal year per ship class and fleet basis - 30 May 1980, and updated on a semi-annual basis thereafter commencing 15 October 1980.

(2) Maintain a semi-annual status for individual ship, class, and fleet asbestos thermal insulation replacement in order to effectively monitor program accomplishment.

(3) Obtain the concurrence of the Deputy Commander for Nuclear Propulsion (SEA 08) for actions related to nuclear-powered ships.

d. Deputy Commander for Ship Design and Integration (SEA 03) shall ensure that materials containing asbestos are not specified in the design of ships where asbestos free substitute materials are available.

e. Principal Deputy Commander for Logistics (SEA 04) shall:

(1) Ensure information is promulgated on specific engineering controls to be utilized when working with asbestos containing materials for which acceptable substitutes have not been identified.

(2) Issue program guidelines to establish a common baseline for program participants which will ensure compatible interfaces, provide necessary degree of uniformity of information/data requirements, and facilitate effective coordination of the overall program.

(3) Provide asbestos thermal insulation replacement plans for each ship/class to CNO (OP-04) for approval and funding support.

f. All addressees shall comply with this instruction and the requirements of references (c) and (d) in all work with asbestos containing materials.

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Vice Commander

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