SAFETY Review

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Safety costs money—lack of safety costs infinitely more. We must pursue an effective, efficient safety program with the same vigor we pursue an effective, efficient program of shipbuilding, conversion and repair.

R. K. James

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Chief, Bureau of Ships

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ASBESTOSIS

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IN 1930, the first cases of asbestosis were reported in the United States. A few years later (1934), amosite, a type of asbestos, was found to be comparatively light in weight and an excellent insulator for shipboard work. By 1937, manufacturing problems were solved and the material was used productively aboard naval vessels. During the war years, shipyards had a great influx of employees in all trades, and pipe covering was no exception. Asbestos was used extensively. In 1945, a medical survey team noticed the dusty working conditions of pipe coverers and a study was made of the working environment of these employees in four shipyards. High dust concentrations were found at the time and X-ray examinations given to over 1,000 pipe coverers. Only three employees, each with more than 20 years' experience in working with asbestos material, were found to have asbestosis. This low incidence of disease and the extensive number of years the affected employees worked in the material led the investigators to conclude pipe covering to be a relatively safe operation in shipyards. Exhaust ventilation and respiratory protection were still recommended as good practices. The "extensive years" gives us an extremely important clue to watch.

Medical evidence indicates the requirement for many years of exposure to develop asbestosis.

Shipyards have two work areas, the insulation shop and aboard ship, where there is a potential exposure to asbestos fibers. Pads, like small pillows for shipboard fittings, are made in the shop. Here asbestos cloth is cut to size and filled with a type of asbestos called amosite. Recently, in this shipyard, fibrous glass has replaced amosite as the filler for these pads. Aboard ship, a great variety of insulation is performed. Insulation blocks are shaped with a saw, pads are applied to fittings, insulation cement is applied to blocks and covered with asbestos cloth. These, and other operations, take place in nearly all compartments; however, most work is done in the machinery spaces. By far the greatest potential exposure to asbestos fibers occurs during ripout of old insulation for ship overhaul or reconversions.

There is still much to be learned in the area of measurement and evaluation of asbestos fibers in the working environment. The general feeling is that asbestosis is caused by breathing relatively long fibers (10-25 microns) and that the fine asbestos dust is relatively inert. At this time, the recommended maximum allowable concentration is 5 million particles per cubic foot. Control of asbestos dust and fibers is relatively easy in the pad shop. A water supply pipe, filled with small holes, is located directly over the asbestos cloth on the end of the cutting table. As the cloth is drawn onto the table, the cloth is dampened. This cloth remains damp throughout the process of filling, sewing, and installing pins in the pads. Additional exhaust ventilation has been installed in the shop and is now operated constantly during working hours. Dust studies were made while dry cloth and amosite were in use and the ventilation off. These counts were generally in the range of 5 to 20 mppcf. Under improved conditions, the count is generally below 1 mppcf.

A pipe coverer's working environment on board ship is constantly changing, making it difficult to obtain an average dust exposure. Almost any concentration of dust and fibers can be found under varying conditions. The highest counts, of course, are during ripout where 200 mppcf are not uncommon. Due to the constantly changing work positions and areas of pipe coverers, adequate ventilation is not possible. The worker's best protection is to avoid careless creation of dusty conditions, use damp material when possible, and wear respiratory protection constantly. There is, at present, no known cure for asbestosis. Once a person has contracted the disease he has suffered a loss of health which cannot be redeemed.

For an educational program, a tape recording was made of an interview with a former employee who is now receiving disability compensation for asbestosis. This recording, along with discussion, has been presented on several occasions to encourage employees to use every means to protect themselves from exposure to asbestos fibers. Films are also periodically shown on the use of respirators.

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