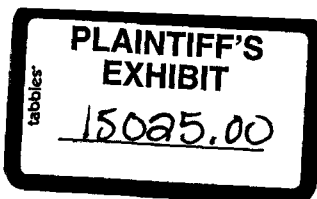




DEPARTMENT OF THE NAVY
NAVAL REGIONAL MEDICAL CLINIC
BOX 121
FPO SAN FRANCISCO 96610



141:FM
12 August 1974

MEMORANDUM

From: Head, Industrial Hygiene Division, NRMCM, Pearl Harbor
To: Safety Director (Code 185), Pearl Harbor Naval Shipyard
Sub: Asbestos Dust Counts During Shipboard Asbestos Operations;
forwarding of

Ref: (a) U.S.D.O.L. letter No. A15-15483 of 15 July 1974
(b) Letter from Antone R. Teixeira to PHNSY Safety Office dated 22 July 1974
(c) ACGIH Documentation of Threshold Limit Values, 3rd Edition, 1971
(d) OPNAVINST 6260.1, Control of Asbestos Exposure to Naval Personnel and Environs
(e) Federal Register, Vol. 37, No. 202, 18 Oct 1972, Dept of Labor Occupational Safety and Health Standards

Encl: (1) Asbestos Fiber Counts of Air Samples During Pipe-Covering and Insulation Operations, Shop 56

1. In accordance with your request for assistance to determine subject dust concentrations as one portion of reference (a), you will find enclosure (1) which presents results obtained at Pearl Harbor Naval Shipyard.

2. Although reference (b) indicates that he was exposed primarily to the resultant airborne asbestos during removal or ripout operations on board various vessels, enclosure (1) additionally presents dust concentrations during fabrication and installation operations. Installation operations, of course, also occur on board ship as do a limited amount of fabrication operations. Most of the fabrication work however is accomplished in the shop. Both of these operations generally create dust levels that are within the current threshold limit value for asbestos.

3. The removal or ripout operations create the highest dust concentrations and spot checks on these operations back to March of 1955 indicate that the level of dustiness has remained fairly constant. The older data must be converted in order to compare it with current data and the conversion is not absolutely accurate. Nevertheless, using the conversion in reference (c) of 6 fibers per milliliter being equivalent to one million particles per cubic foot, we can convert this older data and it is then very comparable to the data shown in enclosure (1).

EX. 16
F. Hentle's copy
2-23-84

EX. 16
Hentle's
2-23-84
Exhibit 91.118



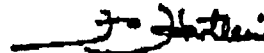
4. The "magnesia" referred to in the report is a mixture of 85% magnesium carbonate and about 15% asbestos fiber for strength and bond. "Unibestos" is the trade name for amosite asbestos and refers in the report to preformed sectional pipe covering made of amosite fibers held together with a binder. The term "amosite" as used in the report refers to asbestos felt used around valves or other irregular surfaces.

5. Except where otherwise noted in the "Remarks" column, samples were taken at the breathing zone of the operator during actual working conditions. The samples were counted under 400 X magnification using phase contrast microscopic techniques. Only those fibers over 5 microns in length are included in the counts.

6. The current 8-hour time weighted average threshold limit value for asbestos (all forms) has been established by references (d) and (e) as 5 fibers per milliter of air for those fibers longer than 5 microns in length.

7. Our records indicate that the supervisors of the pipe coverers and insulators have been continually and periodically notified that respiratory protection during ripouts is absolutely essential. The enforcement of these recommendations in the past is very questionable, but is presently very strict in order to comply with the requirements of reference (d).

8. In this regard, associated trades are presently excluded from these asbestos areas unless they have very good reasons for entering these spaces. They are then admitted only when properly protected with respirators, disposable tank suits, etc. It is difficult to say at present how carefully these associated trades were excluded from asbestos ripout areas in the past. However, it is suspected that entry to these spaces was much more lax in the past and workers were generally much less careful than about their exposure to asbestos dust.



F. HERTLEIN

Copy to:
Code 150
700

ASBESTOS FIBER COUNTS OF AIR SAMPLES COLLECTED DURING PIPE-COVERING AND INSULATION OPERATIONS, SHOP 36

I. Removal Operations

Type of Insulation	Operation	Location	Sampling Date	Fibers/ft. 25 ft. length	Remarks
Magnesite blocks	Removal from guardline valve, main steam line	USS Steadfast	7/28/71	39.2	
	Removal of blocks and cement from high pressure turbine	Pwd engine room, USS Preble	4/25/72	59.6	
Magnesite molded sections	Removal from oil line leading to No. 28 boiler	USS Edwards	9/23/71	0.9*	
	Removal of asbestos cloth and molded sections from steam lines	USS Kaufshut	8/27/71	327	
	Removal of asbestos cloth and molded sections from steam lines	USS Kaufshut	8/27/71	230	
	Removal from elbow of 2" steam line using hand saw, knife, and wire cutters	USS Frank Knox	4/14/72	1.3*	Asbestos cloth already removed
Unibestos molded sections	Removal from 5" main steam line to low pressure turbine	Pwd engine room, USS Preble	4/24/72	94.4	

* Unusually low value. Man worked very carefully to reduce airborne dust.

Enclosure (1)

Type of Insulation	Operation	Location	Sampling Date	Fibers/ft > 5 in length	Remarks
Insulating pads (fiberglass covered with asbestos cloth)	Cutting wire and removing large asbestos pads	Engine room, USS Deliver	8/17/71	0	
Asbestos cloth lagging	Removal from magnesium molded sections on elbow of 2" steam line using hand saw and knife	USS Frank Knox	4/14/72	6.2	
Asbestos	Holding bag to collect removed asbestos	Engine room, USS Deliver	8/17/71	291	
	Removing asbestos from bottom area of low pressure turbine	Engd engine room, USS Preble	4/24/72	158	
	Removing asbestos from bottom area of De Laval LP turbine	Engine room, USS Preble	4/24/72	133	
Combination of molded sections of unibestos and magnesite	Cut and remove asbestos cloth. Break away chunks of molded unibestos and magnesite	Aft fireroom, USS Strauss	11/18/71	4.8*	
Asbestos	Gathering muslin containing asbestos rubbish from deck area, emptying rubbish into poly bag, and relaying muslin cloth on deck	Engine room #1, USS Preble	4/24/72	152	

* Unusually low value. Men worked very carefully to reduce airborne dust.

I. Fabrication

Type of Insulation	Operation	Location	Sampling Date	Fibers/ml > 5 u in length	Remarks
Magnesia, molded sections	Cutting using a hand saw	On cable in Lagging Section, X56	4/10/72	0	
Magnesia blocks	Scoring with Stryker case cutter	Lagging Section, X56	9/23/71	0.9	
	Scoring with Stryker case cutter	Lagging Section, X56	9/30/71	0.4	
	Scoring with hand saw	Lagging Section, X56	9/23/71	0.9	
Unibestos, molded section	Enlarge opening using knives	Lagging Section, X56	10/7/71	20.6	
	Cutting with hack saw blade	Outdoors	1/12/72	9.4	
	Cutting with hand saw and knife	Table in Lagging Section, X56	3/23/72	1.7	
Insulating cement (magnesia type)	Mixing in "mud" trough	Lagging Section, X56	3/30/72	0	Only 1 bag mixed. Normally 3 bags are used. Ventilation system was removing 1100 CFM
	Cleaning using industrial vacuum cleaner	Lagging Section	5/2/72	0.8	Blower end of Hild #8351
			5/2/72	0	Exhaust end of Hild #8351
			5/2/72	0.3	Exhaust of Master Vac Model P-1009, #177566

-3-

Enclosure (1)

Type of Insulation	Operation	Location	Sampling Date	fibers/ml >5 u in length	Remarks
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Asbestos cloth

Cutting wet cloth using saws and folding to make rolls	On table in Lagging Section	3/23/72	0	
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Cutting wet cloth using saws	On table in Lagging Section	3/30/72	0	
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Covering Kevlar pads with asbestos cloth and stapling	On table in Lagging Section	10/7/71	0	Asbestos cloth wet down after being pulled off the roller
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Unroll asbestos cloth (wet), cut with saws, cover pads, and staple	On table in Lagging Section	10/29/71	0.3	
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Sewing dumplized asbestos cloth with wire mesh using heavy- duty sewing machine	Lagging Section	3/30/72	0.16	Cloth had been wet for cutting operation but had dried out before sewing operation
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1. Installation

Magnesia blocks

Cut magnesia blocks with hacksaw blade, fit on pipe, wire down	USS Standard	7/28/71	4.1	
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Magnesia welded sections

Installing on valve boss and wiring down	Pierroon, USS Preble	6/1/72	0	
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Cutting to length using hacksaw and cutting lengthwise	Pierroon, USS Preble	6/1/72	.02	
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Type of Insulation	Operation	Location	Sampling Date	Fibers/ml 75 u km length	Remarks
Unibestos molded sections	Applying unibestos on feed pump lines	USS Haddock	1/13/72	30	Sampler mounted about 10 inches above work
Insulating adhesive (magnesia type)	Applying wet cement around pipe	USS Stoddart	7/28/71	1.2	
	Applying cement over 4" pipe covered with molded magnesia	Legging Section	4/17/72	0.29	
Asbestos cloth	Installing wet cloth over cement, de-aerating tank	Pod Filterroom, USS Goldsborough	4/13/72	1.5	
	Applying wet cloth over cement on evaporator using Arabitol adhesive and cutting excess using scissors	USS Bryce Canyon	5/24/72	0.01	
	Installing wet cloth on temporary steam line and stapling	Crew's mess, USS Donafish	5/18/72	0.02	
Insulating pads (fiberglass covered with asbestos cloth)	Installing pads on 1" oil fuel lines and valves and securing with wire	Lower engine room, USS Bryce Canyon	4/21/72	0.73	
	Installing pads around valves	Boiler room, USS Bryce Canyon	5/8/72	0.01	Asbestos cloth had been wet down earlier and was still moist